What is claimed is:

1. A method for managing the depth of a de-jitter buffer comprising:

determining an initial depth parameter, rate of change parameter for changing the depth value, and threshold depth parameter for the de-jitter buffer;

monitoring a characteristic of the de-jitter buffer;

modifying at least one of said initial depth parameter, rate of change parameter or threshold depth parameter based on said monitoring.

2. The method of claim 1 wherein said monitoring comprises comparing a characteristic of the de-jitter buffer with a predetermined value of said characteristic.

3. The method of claim 2 wherein said characteristic is a measured packet loss probability and the predetermined value of said characteristic is a predetermined value of the measured packet loss.

4. The method of claim 3 further wherein the measured packet loss probability is greater than or equal to the predetermined value of the packet loss probability.

5. The method of claim 4 wherein said modifying comprises modifying parameters such that the packet loss probability is reduced.

6. The method of claim 1 wherein said monitoring comprises comparing a measured packet loss probability with a predetermined value of the packet loss probability and determining that the measured packet loss probability is less than the predetermined value of the packet loss probability.

7. The method of claim 6 wherein said modifying comprises modifying parameters such that a voice-path delay is reduced.

8. The method of claim 1 wherein said monitoring comprises comparing a measured voice-path delay with a predetermined value of the voice-path delay.

9. The method of claim 1 wherein the measured voice-path delay is greater than or equal to the predetermined value of the voice-path delay.

10. The method of claim 9 wherein said modifying comprises modifying parameters such that the voice-path delay is reduced.

11. The method of claim 1 wherein said monitoring comprises comparing a measured voice-path delay with a predetermined value of the voice-path delay, the measured voice-path delay being less than the predetermined value of voice-path delay.

12. The method of claim 11 wherein said modifying comprises modifying parameters such that packet loss probability is reduced.

13. The method of claim 1 wherein the characteristic is an R-factor of the de-jitter buffer.

14. The method of claim 13 wherein said modifying comprises modifying at least one parameter such that the R-factor is increased or decreased.

15. The method of claim 14 wherein the R-Factor measures voice quality.

16. The method of claim 1 further comprising classifying the incoming call.

17. The method of claim 16 wherein said classifying comprises determining characteristics of the incoming call and grouping the call into a category based on the determined characteristics.

18. The method of claim 17 wherein the determined characteristics are selected from the group consisting of type of call, physical distance between a transmitter and a receiver, type of access, type of egress, type of backbone and terminal capability.

19. The method of claim 18 comprising determining the type of call, the type of call being selected from the group consisting of voice, fax and voice-band data.

20. The method of claim 18 comprising determining the type of access of the voice calls, the type of access selected from the group consisting of two wire cable pair, digital subscriber line (DSL), coaxial cable, wireless, standard local loop and Ethernet.

21. The method of claim 18 comprising determining the type of backbone utilized by the voice calls, the type of backbone selected from the group consisting of Internet Protocol (IP), Asynchronous Transfer Mode (ATM) and Frame Relay.

22. The method of claim 18 comprising determining the terminal capability of the voice calls.

23. The method of claim 18 comprising determining the physical distance between a transmitter and a receiver.

24. The method of claim 23 wherein said step of determining the physical distance comprises:

transmitting a signal to a receiver at a first point in time;

detecting a response from the receiver at a second point in time;

measuring the difference between the first point in time and the second point in time; and

correlating the difference with the physical distance.

25. A method for managing depth of a de-jitter buffer comprising:

receiving a data packet associated with an incoming call, said data packet being associated with a delay;

increasing the de-jitter buffer depth by a predetermined first percentage if the delay is greater than or equal to a first threshold value of the depth of the de-jitter buffer;

decreasing the de-jitter buffer depth by a predetermined second percentage if the delay is less than a second threshold value of the depth of the de-jitter buffer.

26. The method of claim 25 wherein increasing the de-jitter buffer depth by a predetermined percentage comprises setting the de-jitter buffer depth to a predetermined maximum value if the delay is greater than or equal to the first threshold value of the depth of the de-jitter buffer and if the depth of the de-jitter buffer is greater than or equal to a predetermined maximum value.

27. The method of claim 25 wherein decreasing the de-jitter buffer depth by a predetermined second percentage comprises setting the depth of the de-jitter buffer to a predetermined minimum value if the delay is less than the second threshold value of the depth of the de-jitter buffer and if the depth of the de-jitter buffer is less than a predetermined minimum value.

28. The method of claim 25 further comprising classifying the incoming call in a class of calls.

29. A method for managing depth of a de-jitter buffer comprising:

receiving a data packet associated with an incoming call, said received data packet being associated with a delay;

increasing the de-jitter buffer depth by a predetermined first percentage if the delay is greater than or equal to a first threshold value of the depth of the de-jitter buffer;

increasing the de-jitter buffer depth by a predetermined second percentage if the delay is less than the first threshold value and greater than or equal to a second threshold value, the first threshold value being greater than the second threshold value;

decreasing the de-jitter buffer depth by a predetermined third percentage if the delay is less than the second threshold value and greater than or equal to a third threshold value, the second threshold value being greater than the third threshold value.

30. The method of claim 29 wherein increasing the de-jitter buffer depth by a predetermined first percentage comprises setting the de-jitter buffer depth to a predetermined maximum value.

31. The method of claim 29 wherein increasing the de-jitter buffer depth by a predetermined second percentage comprises setting the de-jitter buffer depth to a predetermined maximum value.

32. The method of claim 29 wherein decreasing the de-jitter buffer depth by a predetermined third percentage comprises setting the de-jitter buffer depth to a predetermined minimum value.

33. The method of claim 29 further comprising setting the depth of the de-jitter buffer equal to a predetermined initial value only if the data packet is the first packet of the incoming call.

34. The method of claim 29 wherein the incoming call is classified in a class of calls.

35. A method for managing depth of a de-jitter buffer, said de-jitter buffer associated with an ideal buffer depth, the method comprising:

receiving a data packet associated with an incoming call, said data packet being associated with a delay;

setting the depth of the de-jitter buffer equal to the ideal buffer depth only if the data packet is the first data packet of the incoming call or of a talkspurt or if the depth of the de-jitter buffer differs from the ideal buffer depth by greater than a predetermined amount.

36. A method for setting a minimum delay reference associated with a data packet from an incoming call at a de-jitter buffer, the method comprising:

receiving a data packet associated with an incoming call;

computing an actual arrival instant of the data packet and a reference zero-delay arrival instant of the data packet;

calculating a delay based on said actual arrival instant of the data packet and said reference zero-delay arrival instant of the data packet;

dropping the data packet if the actual arrival instant of the data packet is greater than the reference zero-delay arrival instant of the data packet and the delay is greater than the depth of the de-jitter buffer;

adjusting a minimum delay value upward if the actual arrival instant of the data packet is greater than the reference zero-delay arrival instant of the data packet.

37. A method for setting a minimum delay reference associated with a data packet from an incoming call at a de-jitter buffer, the de-jitter buffer having an ideal depth, the method comprising:

receiving a data packet associated with an incoming call;

computing an actual arrival instant of the data packet and a reference zero-delay arrival instant of the data packet;

calculating a delay based on said actual arrival instant of the data packet and said reference zero-delay arrival instant of the data packet;

declaring the data packet a minimum delay packet if the actual arrival instant of the data packet is less than the reference zero-delay arrival instant of the data packet and the depth of the de-jitter buffer minus the delay is less than or equal to a predetermined maximum value;

dropping the data packet, declaring a virtual packet as a minimum delay packet and setting the actual arrival instant of the virtual packet equal to the sum of the reference zero-delay arrival instant of the data packet and the depth of the de-jitter buffer minus a

predetermined maximum value if the actual arrival instant of the data packet is less than the reference zero-delay arrival instant of the data packet and the depth of the de-jitter buffer minus the delay is greater than a predetermined maximum value;

setting an arrival instant of the minimum-delay packet equal to the actual arrival instant of the data packet;

setting the end-to-end delay of the minimum-delay packet equal to the actual arrival instant of the data packet minus a transmission instant of the data packet;

decreasing at least one of the depth of the de-jitter buffer and the ideal depth of the de-jitter buffer by the difference of the actual arrival instant of a data packet and the reference zero-delay arrival instant of the data packet.

38. A method for managing the depth of a de-jitter buffer on the voice-path in a packet network, the method comprising:

selecting an initial ideal_buffer_depth parameter based on classification of an incoming call;

selecting one or more rates of changes of ideal_buffer_depth parameter based on the classification of the incoming call;

updating the initial ideal_buffer_depth parameter based on one of the measured voice-path delay and the packet loss probability over at least one previous call of the same class;

updating one or more rates of changes of ideal_buffer_depth parameter based on one of said measured voice-path delay and the packet loss probability over at least one previous call of the same class;

choosing an initial value and rates of change of the ideal_buffer_depth parameter for a first data packet of the incoming call based on the classification of the call and one of the measured voice-path delay and the packet loss probability over at least one previous call of the same class;

updating the ideal_buffer_depth parameter based on the delay of the data packet;

updating a realized_buffer_depth parameter based on the ideal_buffer_depth parameter;

updating a minimum-delay reference parameter based on the delay of the data packet;

dropping a packet due to one of a buffer underflow and a buffer overflow based on the delay of the data packet;

determining a buffer depth based on the realized_buffer_depth parameter.